

Amendments to the Drawings:

Applicants present a replacement sheet and an annotated sheet showing the changes made to the drawings.

In Figure 4, the top row of LEDs is shown as illuminated in the front view.

Attachments: 1 Replacement Sheet (Figures 4 and 5)
 1 Annotated Sheet Showing Changes Made (Figures 4 and 5)

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REMARKS

Reconsideration and allowance of the claims are requested in view of the above amendments and the following remarks. The drawings and claims 1 and 12 have been amended. Support for the claim amendments may be found in the specification and claims as originally filed. For example, support for the claim amendments may be found in the present specification at least at page 4, lines 1-3. No new matter has been added.

Upon entry of this amendment, claims 1-17 are pending with claims 1 and 12 being independent.

1. Change of Power of Attorney

The present Office Action was erroneously mailed to Dykema Gossett PLLC in Bloomfield Hills, MI. Additionally, as of the date of the present amendment, Public PAIR erroneously indicates that the Attorney/Agent for the present application is Dykema Gossett PLLC.

Contrary to the mailing address of the Office Action and the indication in Public PAIR, a change of power of attorney was filed in the present application on March 27, 2008, revoking all previous powers of attorney given for the present application to Dykema Gossett PLLC, and appointing practitioners associated with customer number 22971 (i.e., practitioners at Microsoft Corporation). A statement under 37 CFR 3.73(b) was submitted with the change of power of attorney. **Therefore, applicants respectfully request that all future correspondence from the Office regarding the present application be sent to the correspondence address associated with customer number 22971:**

**Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399**

Applicants also request that any official records relating to the present application be updated to reflect the changes invoked by the change of power of attorney filed on March

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27, 2008.

2. Drawings

The Office Action on page 2 objects to the drawings asserting that Fig. 4 shows the top row of LEDs illuminated in the side view but the bottom row of LEDs illuminated in the front view.

In response to this objection, a replacement sheet of drawings illustrating a revised Fig. 4 has been included. The replacement sheet illustrates Fig. 4 showing the top row (instead of the bottom row) of LEDs illuminated in the front view, which correctly corresponds to the top row of LEDs illuminated in the side view.

Therefore, in light of the amendments to the drawings and the above remarks, applicants submit that the objections to the drawings are overcome.

For at least the above reasons, reconsideration and withdrawal of the objection to the drawings are respectfully requested.

3. Rejections Under 35 U.S.C. §102

The Office Action rejects claims 1-2, 5, 7-13 and 16 under 35 U.S.C. §102(e) as being anticipated by Irwin (4,978,952). Applicants respectfully traverse this rejection for at least the following reasons.

Irwin discloses a video display having a shutter assembly with apertures, optical guides extending behind the assembly and a group of different light sources channeling their light into each of the optical guides, respectively (see abstract). Irwin teaches that light 26 from LEDs 25 is focused or channeled into respective collimators (or optical guides) 20, one for each set of LEDs or column of pixels. The light enters through an entrance, e.g., lens surface 24, and diverges by internal reflection off mirrored surfaces 28, 29 on the collimator edges (see col. 5, lines 33-38; Figs. 2-4). Irwin teaches that mirrored surface 28 is convex parabolic and mirrored surface 29 is concave hyperbolic (see col. 6, lines 16-24).

Irwin clearly teaches that each optical guide 20 has a uniform thickness with respect to

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the direction of propagation of the light through each optical guide (see Figs. 2, 4 and 5). Instead of a tapered cross-section used for internally reflecting the light, Irwin teaches the use of the mirrored surfaces 28, 29 to reflect light in the optical guides and, consequently, teaches away from a tapered cross-section in the direction of propagation of the light. Therefore, Irwin fails to teach that the optical guides 20 have a tapered cross-section in a direction of propagation of the light. As discussed in the present specification (emphasis added):

The waveguide may be literally tapered, i.e. so that it has a cross-section, in the direction of propagation through it before emergence at the face, that tapers down; or it may achieve the same effect by "optical tapering", e.g. using variation in refractive index. (see page 4, lines 1-5).

The parallel light reflected off the mirror enters the thick end 10 of the wedge, which is bevelled so as to be roughly perpendicular to the incoming light, and bounces towards the thin end at ever shallower angles until it escapes, at a position determined by its angle of input. The steeper the angle of input, the earlier the light escapes. (see page 4, line 33 – page 5, line 2).

Therefore, Irwin fails to teach or suggest at least the following elements of independent claim 1 as amended (emphasis added):

a tapered waveguide co-extensive with the display,
...
wherein the tapered waveguide has a tapered cross-section in a direction of propagation of the injected light.

For similar reasons, Irwin also fails to teach or suggest at least the following elements of independent claim 12 as amended (emphasis added):

a) injecting light from a light source of a plurality of light sources at an injection angle into an edge of a tapered waveguide that is co-extensive with the display, wherein the injected light emerges from a position on a face of the waveguide based on the injection angle of the light source, wherein the tapered waveguide has a tapered cross-section in a direction of propagation of the injected light . . .

Additionally, in regards to claim 12, Irwin teaches that a horizontal sweep signal extracted from a television signal is applied to a circuit which has an output line for each group of LEDs (including sources of different color). The sweep preferably causes the output lines to be activated in sequence at the sweep rate. The cathodes of each color LED are connected to the output lines, which act to switch the cathodes of each color LED 25 to a low level (see col. 5, lines 16-23). However, Irwin fails to teach that once light injected from a light source into a waveguide emerges from the waveguide and is scanned onto a portion of a display, switching off the light source. Irwin is silent as to this feature, and instead suggests that any activated LEDs remain “on” by indicating (emphasis added):

Each color LED is fed from the corresponding color signal and thus the LEDs are energized from left to right at the horizontal scan rate to emit the color dictated by the color signal and horizontal sweep signal. In some instances, the color emitted is a color achieved by combining the outputs of two or all three of the diodes at intensities determined by the chrominance signals. (see col. 5, lines 26-32).

Therefore, Irwin fails to teach or suggest at least the following elements of independent claim 12 as amended (emphasis added):

- a) injecting light from a light source of a plurality of light sources at an injection angle into an edge of a tapered waveguide that is co-extensive with the display . . . ;
- b) scanning light emerging from the position on the face of the waveguide onto a portion of the display . . . ;
- c) switching off the light source; and
- d) sequentially repeating steps a) - c) for one or more other light sources of the plurality of light sources, wherein each of the plurality of light sources corresponds to a different injection angle, so that different portions of the display are illuminated in turn as each light source injects light into the edge of the waveguide.

Therefore, since Irwin fails to disclose, or even suggest, all of the elements of independent claims 1 and 12 as amended, these claims are allowable.

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Claims 2, 5 and 7-11 depend from claim 1. Claims 13 and 16 depend from claim 12. As discussed above, claims 1 and 12 are allowable. For at least this reason, and the features recited therein, claims 2, 5, 7-11, 13 and 16 are also allowable.

For at least the above reasons, reconsideration and withdrawal of the rejection of claims 1-2, 5, 7-13 and 16 under 35 U.S.C. §102(e) are respectfully requested.

4. Rejections Under 35 U.S.C. §103

A. Rejection Based on Irwin and Wang

The Office Action rejects claims 3 and 14 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Wang (6,704,071). Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin fails to disclose or suggest all of the elements of independent claims 1 and 12. Wang fails to cure this defect.

Wang is primarily cited by the Office Action for its teaching of a light source 23 that emits a light that may be reflected by a reflecting mirror 24 (see col. 3, lines 8-15; Figure 2).

Wang also discloses a light guide 21 that is tapered to have a thick end 213 and a thin end 214 (see col. 2, lines 39-40). However, as discussed above, Irwin teaches away from a tapered waveguide having a tapered cross-section in the direction of propagation of the light, as included in independent claims 1 and 12 as amended. Therefore, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Irwin with the tapered light guide of Wang.

Furthermore, in regards to claim 12, Wang fails to teach that once light injected from a light source into a waveguide emerges from the waveguide and is scanned onto a portion of a display, switching off the light source.

Therefore, independent claims 1 and 12 are allowable over Irwin in view of Wang.

Claim 3 depends from claim 1. Claim 14 depends from claim 12. As discussed above, claims 1 and 12 are allowable. For at least this reason, and the additional features recited therein, claims 3 and 14 are also allowable.

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For at least the reasons above, reconsideration and withdrawal of the rejection of claims 3 and 14 under 35 U.S.C. §103(a) are respectfully requested.

B. Rejection Based on Irwin and Nauta et al.

The Office Action rejects claims 4 and 15 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Nauta et al. (2002/0030772). Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin fails to disclose or suggest all of the elements of independent claims 1 and 12. Nauta et al. fails to cure this defect.

Nauta et al. is primarily cited by the Office Action for its teaching that light from a lamp 12 may be coupled into a waveguide 15 via a coupling-in means 13 that may be a wedge-shaped optical waveguide that limits the angle of the entering beam to 15 degrees with respect to faces 18, 19 of the waveguide 15 (see paragraph 30; Figure 1).

Nauta et al. also teaches that the coupling-in means 13 may be wedge-shaped (see Figure 1). However, as discussed above, Irwin teaches away from a tapered waveguide having a tapered cross-section in the direction of propagation of the light, as included in independent claims 1 and 12 as amended. Therefore, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Irwin with the wedge-shaped coupling-in means 13 of Nauta et al.

Furthermore, in regards to claim 12, Nauta et al. fails to teach that once light injected from a light source into a waveguide emerges from the waveguide and is scanned onto a portion of a display, switching off the light source.

Therefore, independent claims 1 and 12 are allowable over Irwin in view of Nauta et al.

Claim 4 depends from claim 1. Claim 15 depends from claim 12. As discussed above, claims 1 and 12 are allowable. For at least this reason, and the additional features recited therein, claims 4 and 15 are also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claims 4 and 15 under 35 U.S.C. §103(a) are respectfully requested.

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C. Rejection Based on Irwin and Higuchi et al.

The Office Action rejects claims 6 and 17 under 35 U.S.C. §103(a) as being unpatentable over Irwin in view of Higuchi et al. (5,887,964). Applicants respectfully traverse this rejection for at least the following reasons.

As discussed above, Irwin fails to disclose or suggest all of the elements of independent claims 1 and 12. Higuchi et al. fails to cure this defect.

Higuchi et al. is primarily cited by the Office Action for its teaching that a typical beam representing directional light emitted from the exiting surface of the light guide plate may be led to the frontal direction inside the prism sheet by properly designing a prism vertical angle on the prism surfaces formed on the inside surface (see col. 8, lines 31-36).

Higuchi et al. also teaches a light guide plate 1 having a wedge-shaped section (see Figure 1). However, as discussed above, Irwin teaches away from a tapered waveguide having a tapered cross-section in the direction of propagation of the light, as included in independent claims 1 and 12 as amended. Therefore, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Irwin with the wedge-shaped section of the light guide plate 1 of Higuchi et al.

Furthermore, in regards to claim 12, Higuchi et al. fails to teach that once light injected from a light source into a waveguide emerges from the waveguide and is scanned onto a portion of a display, switching off the light source.

Therefore, independent claims 1 and 12 are allowable over Irwin in view of Higuchi et al.

Therefore, since Irwin and Higuchi et al., alone or in combination, fail to disclose or suggest all of the elements of independent claims 1 and 12, these claims are allowable.

Claim 6 depends from claim 1. Claim 17 depends from claim 12. As discussed above, claims 1 and 12 are allowable. For at least this reason, and the additional features recited therein, claims 6 and 17 are also allowable.

For at least the reasons above, reconsideration and withdrawal of the rejection of claims 6 and 17 under 35 U.S.C. §103(a) are respectfully requested.

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5. Conclusion

Accordingly, in view of the above amendment and remarks it is submitted that the claims are patentably distinct over the prior art and that all the rejections to the claims have been overcome. Reconsideration and reexamination of the present application is requested. Based on the foregoing, applicants respectfully request that the pending claims be allowed, and that a timely Notice of Allowance be issued in this case. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the applicants' attorney at the telephone number listed below.

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If this response is not considered timely filed and if a request for an extension of time is otherwise absent, applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee that is not covered by an enclosed check please charge any deficiency to Deposit Account No. 50-0463.

Respectfully submitted,
Microsoft Corporation

Date: January 22, 2009

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CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

I hereby certify that this correspondence is being electronically deposited with the USPTO via EFS-Web on the date shown below:

January 22, 2009
Date

/Noemi Tovar/
Noemi Tovar

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ANNOTATED SHEET SHOWING CHANGES MADE

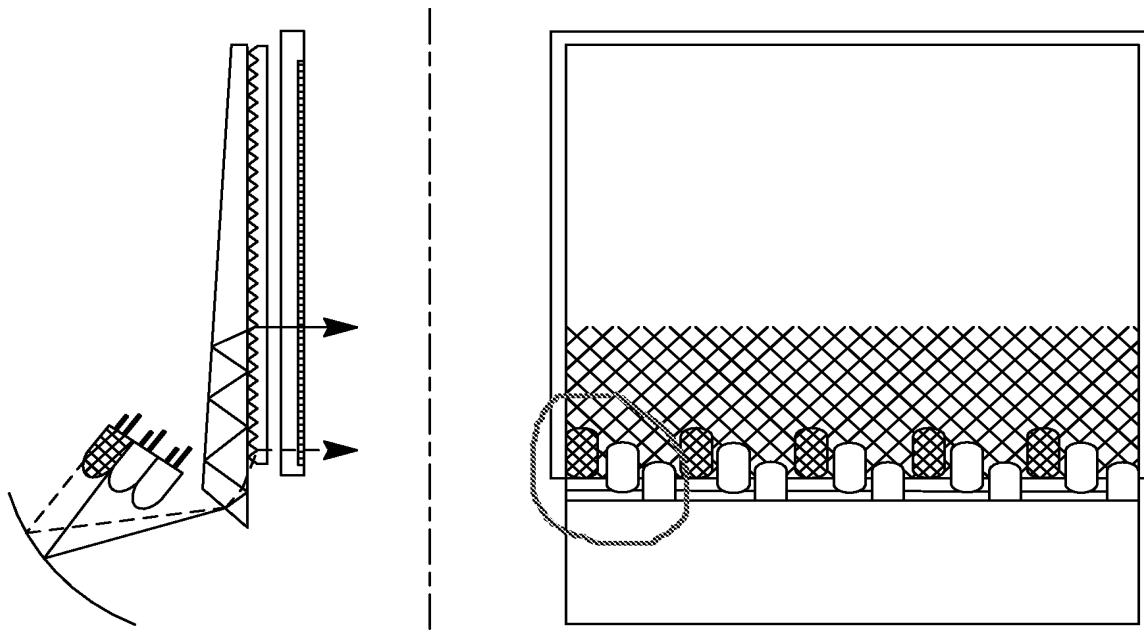


Figure 4

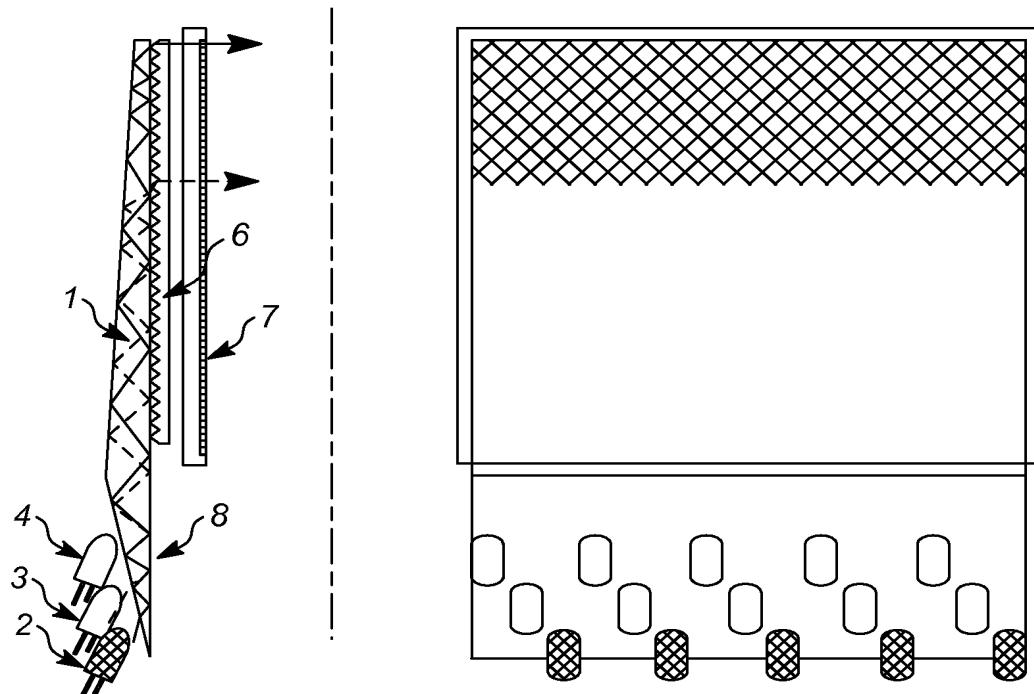


Figure 5